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R I V E R S H A N N O N,
F R O M
L O U G H A L L E N T O K I L L A L O E,
W I T H
E S T I M A T E S O F T H E E X P E N C E
O F C O M P L E T I N G T H E W H O L E:

B Y
W I L L I A M C H A P M A N,
E N G I N E E R.

L I M E R I C K:

PRINTED BY ORDER OF THE SHANNON NAVIGATION
COMPANY, BY A. WATSON.

M.DCC.XCI.

REPORT

1882

NAVIGATION

IN THE

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N A V I G A T I O N
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R I V E R S H A N N O N.

My Lords and Gentlemen,

HAVING according to your Directions examined the River Shannon, the whole way from Lough-Allen to Killaloe, I shall proceed to lay before you such Observations and Estimates as may enable you to determine how far it will be your Interest, Individually or as a Company, to apply to Parliament for Powers to carry into Effect that great National Object of making the whole extent Navigable.

The most difficult and far the most expensive part of the Navigation, is what you are now executing from Limerick to Killaloe; where, in the short space of 10 Miles you surmount near 100 feet of fall to gain a communication with Lough Derg.—In the remaining distance

A from

from the head of that Lake to the entrance of Lough Allen, there is according to * Cowen's Map, less than 60 feet fall to be got over, to open a Navigation 95 Miles in length, skirting or passing through the King's County, the Counties of Galway, Roscommon, Westmeath, Longford and Leitrim; and many Miles laterally into these Counties by the branches of the Loughs and Rivers† that are more or less Navigable

* I found Cowen's Map extremely serviceable in sailing down the Shannon, but on the completion of the Works it will be eligible to have proper Charts of the River and Loughs published on a larger Scale.

			Distance from Portumna, exclusive of Lough Rhee. Miles.
† Lower Brusna to Birr about	=	8 Miles,	11
Suck River to Ballynasloe about	-	6 Miles,	19
Inny River to Ballymahon about	-	3 Miles,	34
Camlin River to Longford about	-	1½ Miles,	42
Carnadoe River to Strokestown about	-	9 Miles,	51
N. B. Navigable about half-way.			
Boyle River (Navigable a considerable part of the way) to Boyle about	}	9 Miles,	63
Besides several other Rivers Navigable a greater or less distance from the Loughs of the Shannon.			

Exclusive of these, the Subscribers of the Navigation from Limerick to Killaloe will be equally benefited by a Navigation from Lough-Derg to Nenagh on the one hand, and the Loughs Grany and O'Grady on the other; both which must sooner or later take place, whenever the Communication is opened from Limerick to Lough Derg.

Navigable at present, and must eventually be made so perfectly, whenever the parent line is executed, towards the completion of which more has proportionably been done than from Limerick to Killaloe.

The first consideration in every River is to coincide with what Nature has done towards making it Navigable; consequently the modes to be pursued must be as various as the circumstances of the Rivers themselves.—The Shannon with some disadvantages, holds forth as many conveniences for Navigation as any River in the three kingdoms, and requires a mode of carrying it on, and a form of Boat peculiar to itself.—In fine, without including the Loughs that have names, the whole River is a chain of Lakes; and, except in particular places, so wide and deep as to render the current imperceptable; on the other hand, its Banks are almost universally so low as to be covered in Winter, and consequently the Channel totally unseen.—In all Rivers strictly such, the wide parts are generally the shallowest, because of the stream from being diffused losing the force to carry forward what has been brought down the narrowest parts. On the contrary the Shannon where sover wide is generally deep, and almost as certainly shallow in the narrow parts, which are in fact only the Mouths† of so many Lakes.

† The great Falls are Ridges of Rocks penning up the Water above them and falling rapidly to the still Pools below; which of course afford situations for Locks of considerable fall and with short Canals.

Lakes. The advantage afforded by this construction of River is that the lowest of its Banks (which would be otherwise an insuperable obstacle on account of the vast expence of raising towing Paths) is more than compensated for by the general slowness of the current, and width of the River, which admits of Boats rowing in calms and turning to windward in contrary winds.

This Navigation (excepting in the instance of tide) will be similar to a coasting Navigation within Islands and occasionally in the open sea, such as within the Western Islands of Scotland, and will require decked Vessels with accommodation for their people, and Anchors or Grapplings to ride by, when wind-bound, or detained by the darkness of the night.

When the number of men Navigating are the same, the profits of different boats will not be directly as their burthens, suppose 50 to 40 tons, but more nearly as the excess of their respective burthens over the tonnage, defraying the expences of the voyage, which suppose to be 30 tons; then, their respective produce to their owners will be nearly as 2 to 1 in place of 5 to 4:—Therefore as the acquisition of burthen under limited dimensions is, in the common forms, inconsistent with turning to windward, which is absolutely requisite to insure a passage on the Shannon, it becomes eligible to adopt the Methods of other countries where lakes and rivers comparatively shallow, have to be navigated

gated; I particularly advert to the flat form and the lee boards of the Dutch Vessels which enable them to carry burthen and make way against a contrary wind.—Vessels thus formed with two striking masts may carry 50 tons from the head of the Shannon to Limerick a distance of 123 miles; to prevent accidents from their running ashore they will require on the various dangerous shoals or reefs of rocks on the lakes, small Pyramids or Cones, built of stone and white washed on the channel side: and on both sides the river, in all the points and bends liable to be flooded, there must, from the same cause be Poles or Beacons* to direct the course of vessels in winter.—The river thus defined, and the shoals removed; and Locks repaired and built as mentioned in the Estimates, a vessel of 50 tons may make on an average a voyage up and down the Shannon from Lough Allen to Limerick in† 3 weeks.

The Daily Charge of her Men will be,
A Master

* In particular causes Buoys may be placed to warp by,—they should be composed simply of a Beam of Norway Fir, secured at one end by a Chain and great Stone, sunk in a Hole, dredged in the Channel.

† With a fair Wind, the whole Passage either way may be made in three Days.

There are about Half a Dozen narrow Passes in the River, where a Boat cannot use Sails in a contrary Wind, but must warp through if it blows too strong for Rowing or Poling.

A Master or Skipper,	1s. 7½d.
4 Men at 1s. 1d.	4s. 4d.
Boat Owners profit and wear and tear about.	} 4s. 4d.

£0 10s. 3½d. say 10s. 6d.
per Day.

s. d.

or for 3 weeks 11l. os. 6d.

equal to nearly	4	5 per ton supposing
no back freight—but say	5	0 (on 120 miles)
Tolls on upper Shannon	6	2 (on 74 miles)
— Killaloe to Limerick	2	6 (on 10 miles)

13 8

Thus it appears that the produce of the highest parts of the Shannon, within 20 miles of Sligo, may be brought down to Limerick at less than 15s. 0d. per ton.—The Land Carriage from Lough Allen to Sligo is in summer 20s. per ton, and in winter 30s. of course it follows that Limerick must draw off the superfluous produce of all the vast extent of country, and in return may supply it with the heavy Imports of timber, &c. &c. from which circumstances it ought to become in commercial importance the second place in the kingdom.—The Canals from Dublin may be expected to draw off part of the produce of the Shannon; but, when we consider that the large boats can't navigate the Canal most likely to join it, and that the freight and tolls along about 68 miles of Canal from Bannagher

nagher to Dublin, will be more than twice as much as from Banagher to Limerick, there will be sufficient advantage in favor of the Merchants of the latter City.

In the proposed works much has already been done; and therefore exclusive of its being the interest of the Undertakers from their property in the country, and other causes, to keep the Tolls low, it is a duty incumbent on them.—Under these ideas, I would recommend, in an Application to Parliament for Powers to carry on the work, that a reversionary claim of one third its expence, be made on such of the money granted to other Canals, as they may not be entitled to, from falling short of their estimated expenditure; and to ask no higher tolls than 1d. per ton per mile on the river from Lough Allen downwards, claiming nothing for the projected improvements on Loughs Rhee and Derg, as they are naturally open Navigations, and the improvements on them will be compensated for, by the greater safety of the Boats.

The expence of these works I have according to the annexed estimates, divided into two classes, the one immediately and the other ultimately necessary.—I have there set down the distances that each respective expenditure will progressively make Navigable, that it may be seen what Tolls may arise in the course of the work. As the first or immediately necessary part advances, it appears equitable, that half tolls should be charged; and remain so till fol-

B

lowed

lowed up by the completion, which accordingly as it proceeds will entitle such distance to full Tolls; and the benefit to the Subscribers thus keep pace with the public advantage.

There are two modes of proceeding in entering Lough Allen, the one by a Lock from the level of the Shannon above Fuom's-river, which I have estimated as being the cheaper, and the other by carrying that level forward into the Lough, sufficiently wide for a channel for the Shannon, by which, Lough-Allen would be lowered near five feet, and probably two or three hundred Acres of good Land be reclaimed. This would cost an additional sum to the Subscribers without benefit to the Navigation; but as it may be made of mutual advantage, it is worthy of consideration, whether a clause should not be introduced to empower the subscribers to divide, equally with the claimants, all the Land that may be gained below the main height of the Shannon, between the first of March and first of November, in the three succeeding years, from the passing of the Act.

The surface of the Lough has formerly been lower than now, and has been raised by a Bar thrown up at its mouth by the River Arigna, a mountain-torrent, that brings down a great quantity of gravel. To avoid the difficulty of passing this stream, a new channel has been cut, to discharge it into the Lough about a mile to the westward, and very little is wanting to complete it.

I have

I have now given you every material point
of information that occurred to me ; and,

I have the Honor to be,

My Lords and Gentlemen,

Your obedient humble Servant,

WILLIAM CHAPMAN.

Limerick, 3d. Oct. 1791.

To the Noblemen and Gentlemen,
subscribing to the Navigation,
from *Limerick* to *Killaloe*.

Note omitted at the 6th Page, 7th Line, and Word "rowing."

✂ During three-fourths of the Year, the Men may land
and haul on the Banks of the River, and for a longer period
on the greater part of it.

E S T I M A T E

OF A NAVIGATION,

FROM KILLALOE TO LOUGH ALLEN.

Distance
 Receiving
 TOLLS.
 MILES.

Estimate of Works immediately necessary.

MILES.			
	{	NEW Gates to Clonkeenogue*	
11½		Lock — —	£140
		Laying dry the Foundation	30
		Probable Repairs —	40
			———£210
8		Banagher, a New Lock —	700

19½

SHANNON BRIDGE.

	{ Laying dry the Foundation	£30
14½	{ Head of the Lock and Repairs	120
—	{ Two pairs of Gates —	140
34		— 290

ATHLONE.

* The present Gates are in such a wretched State, through want of Swing-Beams, Sluices, &c. that, even with the help of loose Boards to stop the Openings, and other Contrivances, it requires near three Hours, and a considerable force of Men, to pass a Boat through the Lock.

ATHLONE.

MILES			
34	{	Two pairs of Gates —	£140
		Laying dry the Foundation,	60
		and probable Repairs	
			£200
Lough	{	A Lock-House —	40
Rhee.		A Paved Overflow —	50
		Scouring the Canal —	100
			£190

LANESBOROUGH.

6	{	Laying dry the Foundation	£30
		Head of the Lock and Proba-	120
		ble Repairs —	
—		Two pairs of Gates —	140
40			£290

TARMONBURY LOCK.

8	{	Repairs of Gates and of	£100
		Lock, laying it dry, &c.	
—		Repairs of Lock-House	15
48			£115

ROOSKEY LOCK.

8½	{	Repairs of Gates and of Lock,	150
		laying it dry, &c.	
—		Repairs of Banks, &c.	50
56½			£200

CHARLESTOWN LOCK.

5	{	Laying dry the Lock, Repairs	60
—		of Gates, &c.	
61½			
6	{	Deepening a Pass under Carrick	80
—		Bridge, and securing the Piers	
67½			

BATTLE

MILES

BATTLE BRIDGE.

67 $\frac{1}{2}$	Finishing the Canal through a	
	Limestone Quarry at the	
	South, and a Freestone	700
3	Quarry at the North End,	
	the Middle part Bog, about*	
	New Lock, Road, Bridge, and	750
	Lock-House —	
		£1450

DRUMHARRIS.

	A Lock — —	700
3	A Weir raising the Water	100
	30 Perches of Canal —	120
		920

LOUGH ALLEN.

	40 perches of Canal, at 5l. pr.	200
	160 — — at 2l. 10s.	400
	Lock and Lock-House —	800
1	Bridges over the Canal, and	
	over the Arigna on the Road	220
	from Ballintraue Bridge	
	Changing the Course of the	
	Arigna — —	40
74 $\frac{1}{2}$		1660
16	Lough Rhee.	
5	Lough Allen.	£6375

95 $\frac{1}{2}$	Whole Distance from Portumna.	
	Incidents and Superintendence,	1275
	20 per Cent.	

LIMERICK,

£7650

October 3, 1791.

* The Distances and Heights upon which this and some other Amounts are founded, are only approximate; but, from particular circumstances, are probably nearly right.

ESTIMATE OF WORKS

NECESSARY TO FOLLOW

THE COMPLETION OF THE PRECEDING.

MILES	11½	{	BEACONS above Killaloe,	}	£
			and in the Channel thro'		200
			Lough Derg, about		
		{	Beacons from Portumna to	}	252
			Clonkeenogue, on both sides		
			the River, on an Average 12		
			in a Mile, at 3l. each, viz. on		
			7 Miles, at 36l. —		
		{	3 Draw Bridges over the Abut-	}	150
			ments in the Canal of Clon-		
			keenogue, at 50l.		
		{	Scouring the Canal, 500	}	250
			Perches, at 10s. per		
		{	Beacons from thence to Ba-	}	90
			nagher Canal, 30 at 3l.		
					£942
					A Paved

MILES	{ A Paved Overflow, and Re-	
11½	pairing Banagher Canal	} 100
	Contracting and Dredging the	
8	Channel, at the Fords of	
	Derryhern*, Killifurt†, and	} 300
	Cloonafine‡, about	
	Beacons to Shannon Bridge,	
	8 Miles at 36l.	} 288
19½		— £688

	{ Beacons 14½ Miles to Athlone	
	Canal, at 36l. —	} 522
14½	Flash Weirs and Dredging	
	the Shoals of Ballatanave§,	
	Tullymore , and Long-	} 150
	Island¶	
34		— £672

Draw-Bridge over the lower }
Piers at *Athlone* — } 50

	{ Beacons from Athlone thro'	
Lough	Lough Rhee to Lanesho-	
Rhee.	rough, about —	} 200
	A New Lock-House at Athlone	40
		— £290
		Flashing

* About 3½ Miles }
† 2½ } Below Shannon Bridge.
‡ 1 }

§ Near Ballatanave Castle.

|| About 2 or 300 Yards below Inshuvalla Island.

¶ Head and Tail of Long-Island, the former particularly.

MILES	Flashing and Deepening the	
34	Shoals of Kilnakarra* and	100
	Darryhanny†,	
6	Raising one Bank of the run-	20
	ning Canal below Tarmen-	
	bury	
	Beacons from Lanesborough	
	to Tarmenbury Lock, 6	216
	Miles, at 36l. per	
40		£336
	Deepening Tarmenbury canal	
	and cutting off Angles	200
	within Cloondarragh Island	
8	Repairs of running Canal	120
	above Lough Forbes, and	
	below Rooskey, about	
8	Miles of Beacons from Tar-	288
	menbury to Rooskey, at	
	36l. per	
48		£608
	Improving Rooskey Canal,	50
	about	
8½	Dredging and Guarding the	60
	Shoal between Lough Bofin	
	and Boderig	
8½	Miles of Beacons to Char-	306
	lestown Canal, at 36l. per	
56½		£416
	Widening Charlestown Lock 2 Feet,	250
	about	
	C	Streightening

* Near 1½ Miles }
 † 2½ Miles } above Lanesborough.

MILES	Streightening the Canal	15	}	150
56½	Perches, at 10l. per			
	Raising the South Bridge of		}	50
	the Canal	—		
	Deepening, &c. of Cornecarre		}	100
	Ford, and the Shallow			
	within the Islands below			
	Carrick	—		
5	{ 5 Miles of Beacons to Carrick,		}	180
	at 36l. per	—		
—				£730
61½				
	{ Blasting a deeper Channel		}	200
	through a Rock, about ¾			
6	{ Mile below Leitrim, about		}	216
	6 Miles of Beacons to Battle			
—	{ Bridge, at 36l. per			
67½				£416
	{ Battle Bridge to Lough Allen,		}	180
	about 5 Miles of Beacons,			
7	{ at 36l. per	—	}	40
	Removing a Shoal above			
	Drumgoul	—		
—				£220
74½				
	Superintendence and Incidents		}	£1063 12
	20 per Cent.	—		
				£6381 12

SUMMARY.

[19]

S U M M A R Y.

Works immediately neceffary	}	£7650	0
Works fubfequent		6381	12
Machinery —		400	0
Various Preliminary Expences, <i>viz.</i> an Act of Parliament, &c. about	}	500	0
		—————	£14931 12

LIMERICK,
October 3, 1791.

WILLIAM CHAPMAN.

F I N I S.

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